AMENDMENTS TO THE CLAIMS

1/ (ORIGINAL) A cryogenic rotary coupling, comprising a first cryogenic line segment and a second cryogenic line segment capable of turning relative to each other about a pivot axis of the rotary coupling, first retention means for retaining one of the first and second cryogenic line segments in the radial direction, second retention means for retaining one of the first and second cryogenic line segments in the axial direction relative to the other one of said first and second segments, the radial retention means and the axial retention means defining said axis of rotation of the rotary coupling, said first segment comprising a vacuum-insulated double-walled female portion and said second segment comprising a vacuum-insulated double-walled male portion engaged at least in part in said female portion, a first sealing gasket being interposed between a free end of said male portion engaged in said female portion and one of the first and second retaining means, a second sealing gasket being interposed between a free end of said female portion surrounding said male portion and the other one of said first and second retaining means, and heater means being disposed in the vicinity of the second gasket.

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2/ (ORIGINAL) A rotary coupling according to claim 1, wherein the first gasket is a self-lubricating insert co-operating with a seat associated with one of the first and second retaining means.

3/ (ORIGINAL) A rotary coupling according to claim 2, wherein the self-lubricating insert is made out of one of the following materials: PTFE, PTFCE, filled graphite, PTFE-filled bronze, filled ceramic.

4/ (ORIGINAL) A rotary coupling according to claim 2, wherein the self-lubricating insert is provided with a slot serving to balance pressures between the internal zone of the first and second segments and the annular space defined between the overlapping male and female portions.

5/ (ORIGINAL) A rotary coupling according to claim 2, wherein the self-lubricating insert is provided with an induced-elasticity device serving to distribute contact pressure over the seat while also forming a safety valve.

6/ (ORIGINAL) A rotary coupling according to claim 1, wherein the second gasket is a flexible wiper gasket co-operating with

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the outside surface of the male portion in the vicinity of the radial retention means.

7/ (ORIGINAL) A rotary coupling according to claim 1, wherein the second gasket is a rectangular section annular gasket applied against a plane portion associated with the axial retention means.

8/ (ORIGINAL) A rotary coupling according to claim 6, wherein the second gasket is made of elastomer or of PTFE.

9/ (ORIGINAL) A rotary coupling according to claim 1, wherein the heater means comprise an electrical heater device.

10/ (ORIGINAL) A rotary coupling according to claim 1, wherein the heater means comprise a device for heating by forced convection.

11/ (ORIGINAL) A rotary coupling according to claim 1, wherein the first retention means in the radial direction comprise a centering ring.

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12/ (ORIGINAL) A rotary coupling according to claim 1, wherein the second retention means acting in the axial direction comprise a dry-lubricated axial abutment including a large diameter ball bearing.

13/ (ORIGINAL) A rotary coupling according to claim 1, wherein the vacuum-insulated double-walled female portion and male portion are made of stainless steel or of nickel superalloy.

14/ (ORIGINAL) A rotary coupling according to claim 1, wherein a wire or a section member of insulating material is wound helically in the internal space between the vacuum-insulated double walls of the female and male portions.

15/ (ORIGINAL) A rotary coupling according to claim 1, wherein the internal portion of the vacuum-insulated double walls of the female and male portions is made of an iron alloy having about 36% nickel, such as the alloy known under the name Invar.

16/ (ORIGINAL) A rotary coupling according to claim 1, wherein the vacuum-insulated double walls of the female and male portions are provided with internal reinforcement formed by

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insulating separator pellets having very low thermal conductivity.

17/ (ORIGINAL) A rotary coupling according to claim 16, wherein metal sheets forming screens against radiation are disposed between the vacuum-insulated double walls in alternation with the insulating pellets.

18/ (ORIGINAL) A rotary coupling according to claim 1, wherein conduction-cooled zeolite is integrated between the vacuum-insulated double walls of the female and male portions.

19/ (ORIGINAL) A cryogenic fluid feed line interconnecting a stationary assembly and a moving assembly, the line presenting at least one degree of freedom and including at least one cryogenic rotary coupling according to claim 1.

20/ (CURRENTLY AMENDED) A feed line according to claim 19, having three of said cryogenic rotary couplings with parallel axes~~, implemented in accordance with claim 1~~.

21/ (ORIGINAL) A liquid cryogenic propellant rocket engine having at least one propellant storage tank, a turbopump for

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feeding a propellant injection device, a combustion chamber having a nozzle throat and a nozzle diverging portion, and at least one actuator for modifying the position of the combustion chamber of the rocket engine relative to a stationary chamber-supporting structure, the rocket engine including at least one coupling according to claim 1 disposed on a line for feeding said turbopump from said propellant storage tank or on a line for feeding said propellant injection device from said turbopump.

22/ (ORIGINAL) A rocket engine according to claim 21, the engine being integrated in an upper stage of a launcher, and including a combustion chamber of axis XX' that is substantially perpendicular to the longitudinal axis YY' of the launcher in the launch condition, to within ±15°.

23/ (ORIGINAL) A rocket engine according to claim 21, having a pivot axis situated level with the throat of the nozzle.

24/ (CURRENTLY AMENDED) A rocket engine according to claim 21, having two turbopumps mounted in a position that is fixed relative to the launcher and having outlet ducts for feeding the propellant injection device, each of which is provided with at

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least one said cryogenic rotary coupling ~~according to claim 1~~ in order to allow the rocket engine to pivot about at least one pivot axis relative to the launcher.

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